



GRADE  
**1**

**LEARNER'S  
BOOK**

# Platinum

Coding and Robotics

Maskew Miller Learning  
10 Freedom Way, Milnerton, Cape Town, 7441

© Maskew Miller Learning (Pty) Ltd 2022

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without the prior written permission of the copyright holder.

To request permission to reproduce or adapt any part of this publication, please contact the Rights and Permissions team on 021 532 6000 or email [rightsgranting@mml.co.za](mailto:rightsgranting@mml.co.za). To report copyright infringement, please email [copyright@mml.co.za](mailto:copyright@mml.co.za).

1st impression 2025

ISBN 978-1-779-83140-8  
EPDF ISBN 978-1-834-97706-5

Publisher: Whitley Makhari  
Managing Editor: Georgia Mehl  
Edited by Christina de Nobrega  
Cover design by MML Visual Design  
Book design by MML Visual Design  
Artwork by AJ Erasmus, Angela Bowring, Illana Dillon, Bev Victor, Ken Etberg, Tabitha Brissett, IT Design Worx, James Whitelaw, MML Visual Design  
Typeset by Jsquare Studio (Pty) Ltd, Design Wave, MML Visual Design  
Printed by

### Acknowledgements

The authors and publisher thank the following for the use of images:

#### Shutterstock

p.5a, Phonlamai Photo; p.5b, Pressmaster; p.5c, p.101c, p.135a, CATZ To Go FACTORY; p.6a, DeawSSv; p.7a, RichardBrooks; p.7b,c smallblackcat; p.8a,b, SeventyFour; p.8c, d, Tatiana Buznikova; p.10a, SeventyFour; p.10b, billy khambule; p.10c, p.66c, p.99i, p.104c, PeopleImages.com-Yuri A; p.11a, Mara7; p.11b, BigTunaOnline; p.11c, Tyra Yusri; p.11d, p.47b, p.145c, Serhiy Stakhnyk; p.11e, p.12b, p.40a, p.47a, p.51a, p.145b, Kaspas Grinvalds; p.11f, p.112c, AlexLMX; p.11g, p.21a, b, p.22a, c, p.103b, d, f, grey\_and; p.12a, p.112b, ifong; p.20a, Alexysun; p.20b, anusorn2005; p.21c, p.22b, p.103c, Denis180787; p.21d, p.22e, p.95b, nazarovsergey; p.21e, p.22f, nevodka; p.22d, p.95c, p.103e, Valentyn Volkov; p.31a, MMCez; p.31b, andriy\_vyshnivetskiy; p.31c, Bryan\_Tunche; p.32a, c, Fawcett Player; p.32b, i\_am\_zews; p.33a, Masha Nethu; p.34a, terekhov igor; p.34b, Photo Win1; p.34c, mama\_mia; p.34d, madut, i\_perfect, perfectlab; p.35a, Vladimir Jotov; p.35d, Vladimir Jotov; p.35b, MyImages-Micha; p.35c, p.54c, p.55c, Dimedro; p.36a, Ruth Black; p.37a, MicrostockStudio; p.37b, Olga\_Rusinova; p.37c, p.105b, p.106b, Viktor1; p.37d, M. Unal Ozmen; p.40b, c, d, p.54a, p.55a, p.62d, p.102d, e, f, Yellow Cat; p.40e, f, g, p.146a, b, c, p.147a, b, c, chaythawin/Shutttersock; p.41a, Alexey\_Popov; p.42b, Ljupco Smokovski; p.44b, Mkosi Omkhulu; p.45a, Asier Romero; p.45b, KieferPix; p.45c, p.57b, p.66b, Prostock-studio; p.45d, Khosro; p.46a, p.72a, p.73a, p.83c, p.90b, p.91b, p.114a, p.115a, p.150f, officeku; p.46b, p.72b, p.90a, p.91a, p.125b, p.126a, p.126a, yuwnis07; p.49a, SOMMAL; p.49b, Evgenia Tuzinska; p.49c, Olga Dubravina; p.49d, N; p.49e, abbracadabra; p.49f, Yeti studio; p.49g, p.95e, Anton Starikov; p.49h, p.78a, b, New Africa emp; p.49i, schankz; p.49j, annaTkaczuk; p.49k, Sarah Marchant; p.49l, p.50a, p.57c, p.58c, p.78f, Pixel-Shot; p.50b, p.101a, p.120a, Suwin66; p.50c, p.120c, Renisons; p.51b, Chay\_Tee; p.51c, p.94g, asharkyu; p.53, Asier Romero; p.54b, p.55b, David Peperkamp; p.54d, p.55c, p.139b, Rozhnovskaya Tanya; p.54e, p.55c, gogoiso; p.56a, Jasen Wright; p.57a, p.94d, p.101b, Pand P Studio; p.57e, la famiglia; p.57e, Andy Dean Photography; p.58a, b, IrenaR; p.58 d, UlfsFotoart; p.60a, Tanveer Anjum Towsif; p.61a, c, p.61a, c, oksana2010; p.61b, ozrimoz; p.61d, chrisbrignell; p.62b, p.99c, kringkrainetnangrong; p.63a, Hurst Photo; p.63b, Prason Sakham; p.63c, Melica; p.63d, p.94h, Africa Studio; p.66a, Phovoir; p.67a, sirtravelalot; p.67b, p.117a, WBM; p.67c, one photo; p.67d, FabrikaSimf; p.69a, p.70a, p.71a, Refox Photos; p.69b, p.70b, p.71b, TerraceStudio; p.69c, p.70c, p.71c, TheFarAwayKingdom; p.69d, Joaquin Corbalan P; p.69e, Shamils; p.69f, Nik Merkulov; p.74a, p.125a, p.126b, IT Team; p.75c, Avocado\_studio; p.78d, Dzha33; p.78e, konzorb; p.78g, Melnikov Dmitriy; p.80a, Yauheni Meshcharakou; p.80b, Billy333; p.83a, Flarkeen; p.83b, quietmind\_art; p.88a, p.136a, Wut\_Moppie; p.88b, Trixy Gatto; p.88c, Eric Isselee; p.88d, Nancy Pauwels; p.94a, goir; p.94c, p.139c, Mykhailo Baidala; p.94e, Terelyuk; p.94f, Javier Crespo; p.95a, Photoography; p.95d, Viktorija Reuta; p.95f, GBJSTOCK; p.96, aekikuis; p.99a, Obak; p.99b, p.104a, gresei; p.99d, ViccoDW; p.99e, PATARA; p.99f, Vinokurov Alexandr; p.99g, Lebedko Inna; p.99h, Jurga Jot; p.102a, p.160a, Meong Stock Gallery; p.102b, p.160c, Erta; p.102c, p.160b, doyanfoto; p.102g, typointia by amol; p.102h, Dream01; p.103a, MarcoFood; p.103g, Svetlana Serebryakova; p.104b, Mike Flippo; p.105a, p.106a, Regreto; p.105c, p.106d, Evgeny Dubinchuk; p.105d, p.106c, Tukaram Karve; p.108a, Nature's Charm; p.108b, Jacques Hugo; p.108c, Geoff Sperring; p.108d, Ariadna22822; p.108e, iamtui7; p.112a, 19 STUDIO; p.112d, Maxxionn; p.116a, Ermolaev Alexander; p.117b, Sombat Muycheen; p.124a, PST Vector; p.136b, Manop Boonpeng; p.139a, Nolte Lourens; p.139d, birdbyb stockphoto; p.144a, Blue Titan; p.145a, Capictures; p.150a, b, c, Masha Nethu; p.150d, e, StockBURIN; p.166a, tanyabosyk; p.166b, GoodStudio.

#### Alamy

p.44a, Aleksandr Davydov; p.57b, Panther Media Global; p.120b, YAY Media AS; p.134a, Aleksei Gorodenkov; p.134b, Jozef Poic; p.135b, Dmitrii Melnikov.

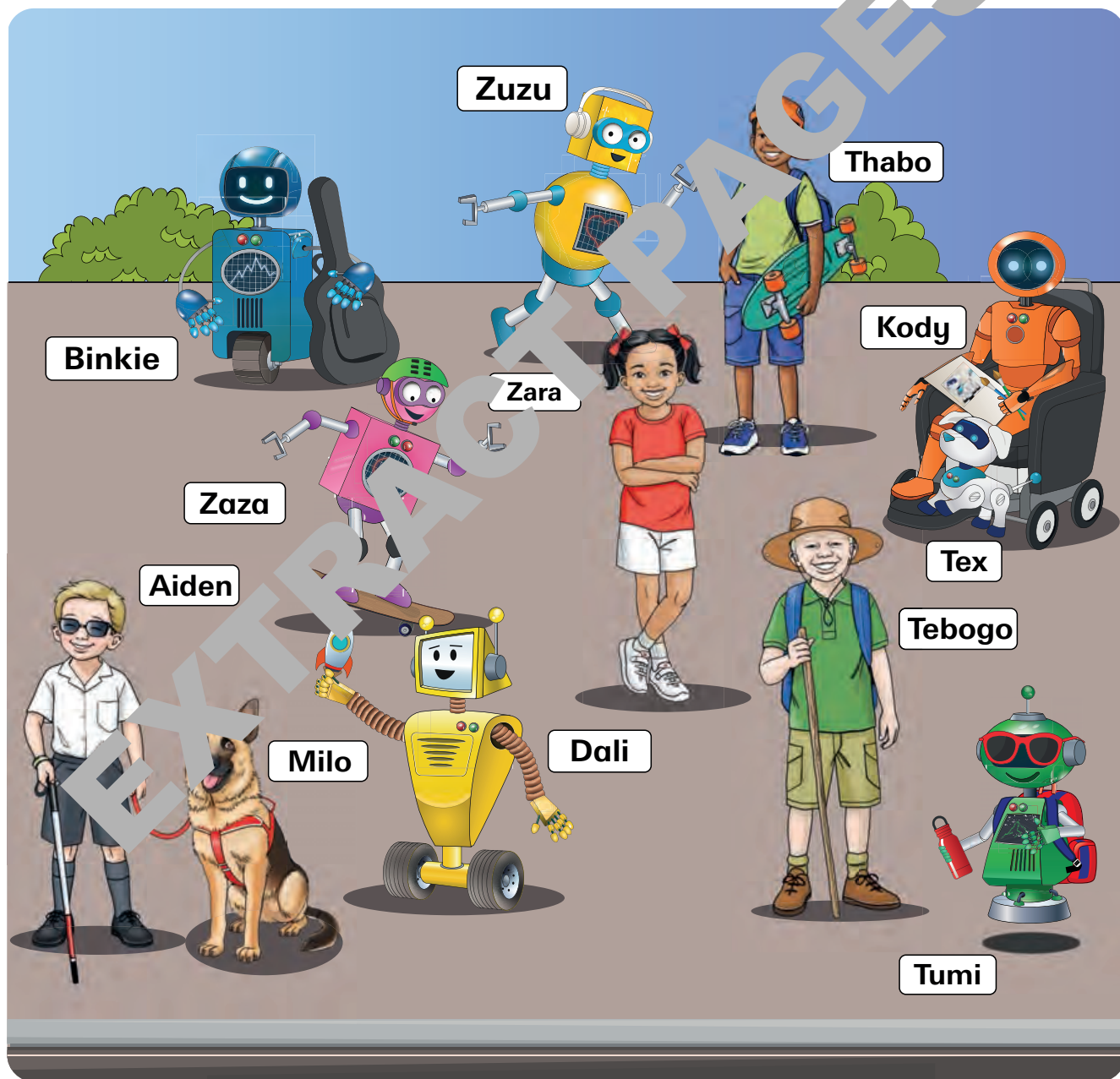
# Welcome

Dear Learner,

Welcome to this exciting textbook! You will meet amazing characters; just like each character is special in their own way, you are too!

Get ready to learn, play and code with your friends.

Happy learning.



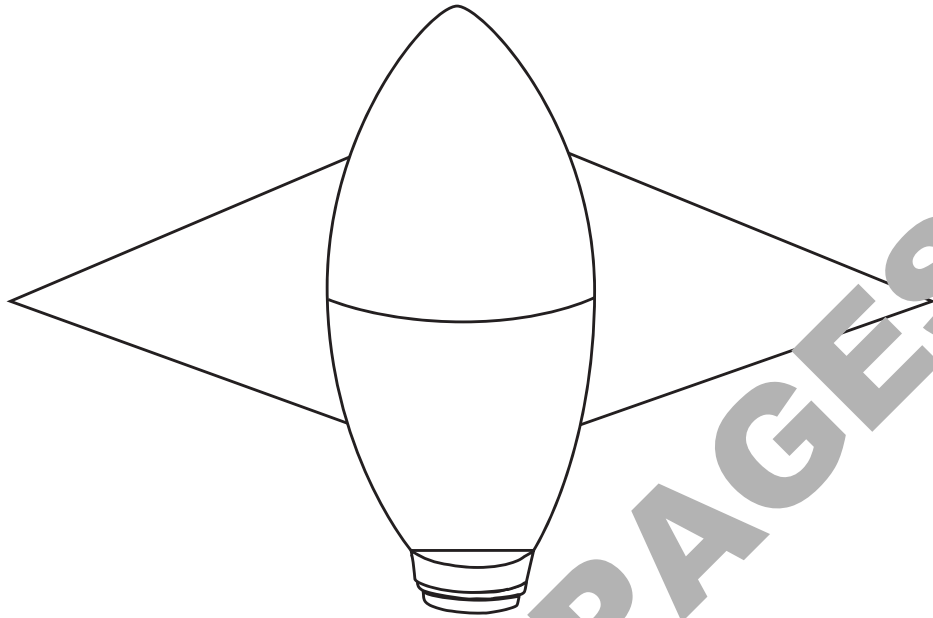
# How to use this book

When you see	It means:
	time to work with my friend
	time to work as a group
	time to use my hands and my brain
	time to draw and write
	time to talk about things
	time to use my brain and imagination
	time to move my body
	time to code
	time to share

Learn new words in the special blocks throughout this book



# To grasp the concept of directionality



## Make a rocket:

You will need:

- 4 X sticks (this can be painted sucker sticks, straws, cardboard or coloured paper cut into strips - whatever is easiest and the most available to you)
- 1 red
- 1 orange
- 1 blue
- 1 yellow
- Glue

## Making your rocket:

- Trace the rocket
- Cut out the traced rocket
- Colour your rocket
  - Up – red
  - Down – blue
  - Right – orange
  - Left - yellow
- Paste your rocket on a piece of cardboard

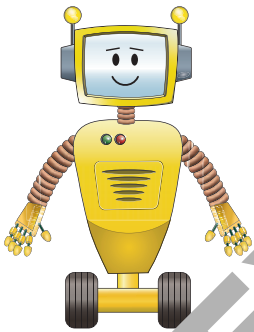
# Contents

## Term 1



I can make patterns.....	viii
Different robots .....	4
All about me.....	7
Living in a digital world .....	10
My robot.....	13
Healthy living .....	17
My patterns.....	20
Move until you hit the barrier .....	23
Solve the problem .....	27
Sort me.....	30

## Term 2



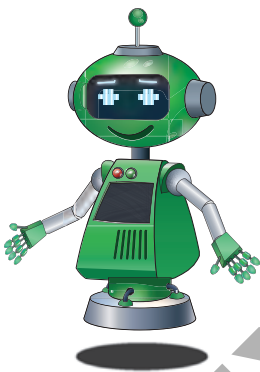
Recognising patterns.....	34
Building a house.....	38
Being safe online.....	42
Input - process - output .....	48
Robot's instructions.....	50
Find it.....	53
Robots help people .....	56
Follow your senses.....	59
Let us talk .....	63
Keeping my body safe.....	68

## Term 3

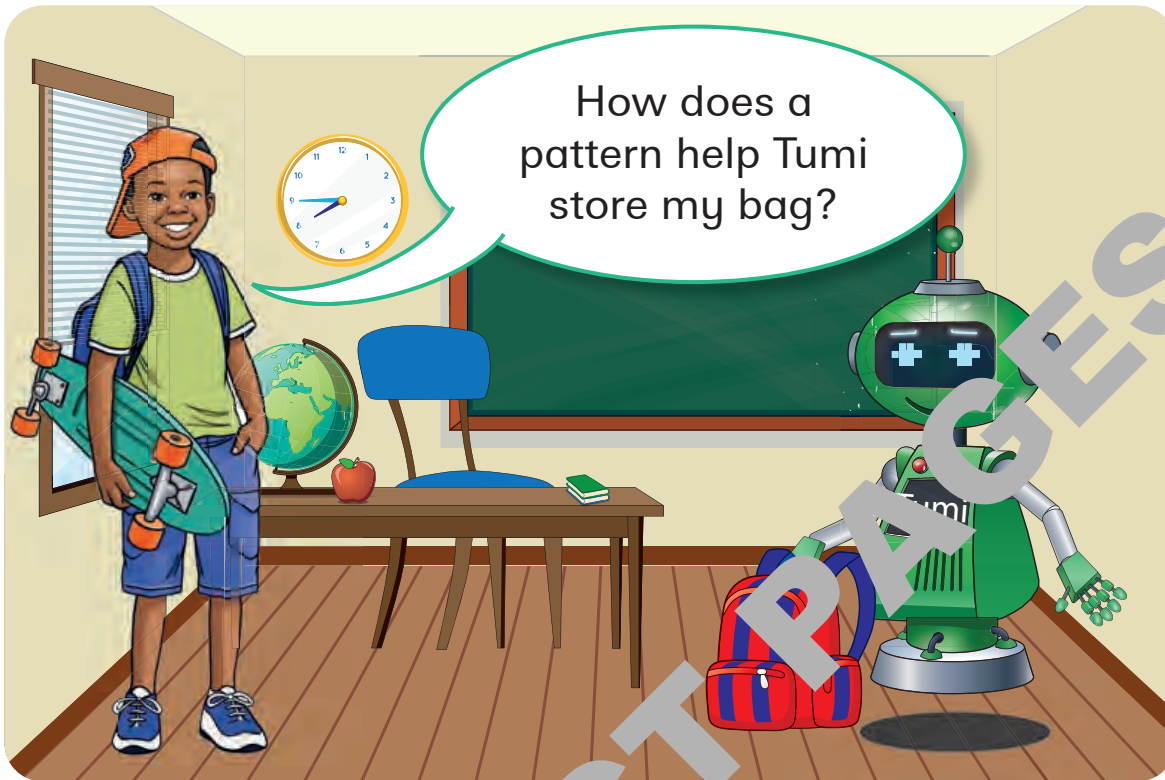


Helping Zaza.....	72
The park .....	77
Pets.....	80
A model of my pet .....	84
Keeping safe .....	89
Help Aiden make the right choice .....	93
Breaking the code .....	95
Let us help Kody.....	98
Food and colours.....	101
My plant.....	104

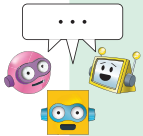
## Term 4



My friend's home .....	108
Find the way home .....	112
What does the messenger say?.....	116
Parts of a robot .....	120
Find the paths to public places .....	123
Help Kody find the park.....	127
Robots at work .....	133
Filtering water .....	138
How do we communicate?.....	144
The stars at night.....	149
Competencies.....	170
New Words.....	173
Braille Alphabet.....	175
South African sign language chart .....	176
Trace and colour .....	177
Numbers.....	180
Templates.....	182

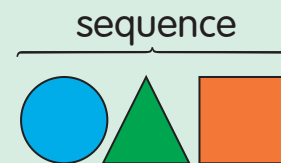


## Let us begin



What is a sequence?

A **sequence** is the order in which objects follow one another.



What is a pattern?

A **pattern** is a sequence that repeats again and again.

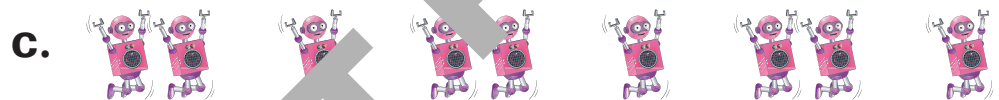
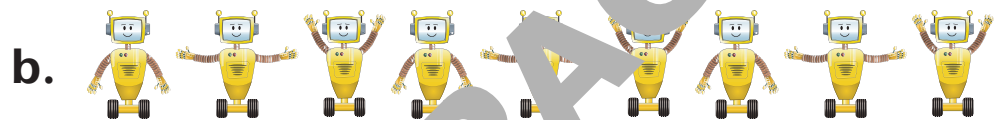


## Activity 1

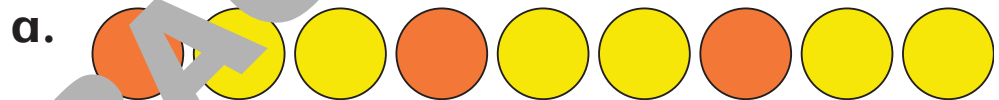


Let us make patterns.

1. Find the pattern. Make the pattern with your body.



2. Copy the pattern.



**sequence** – the order in which objects follow one another.

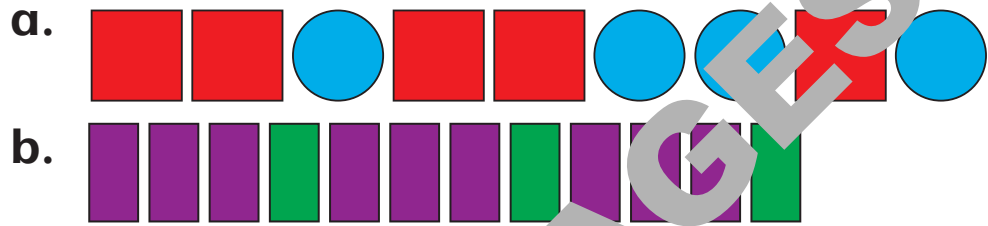
**pattern** – a sequence that repeats again and again.



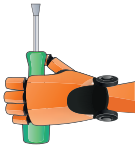
## Activity 1 (Continued)



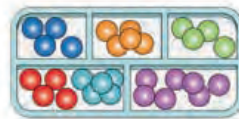
3. Let us look at the shapes.  
Is it a pattern?



## Activity 2



1. Make your own bag tag using beads.
- Choose two colours and make a pattern.
  - Thread your beads onto the string.



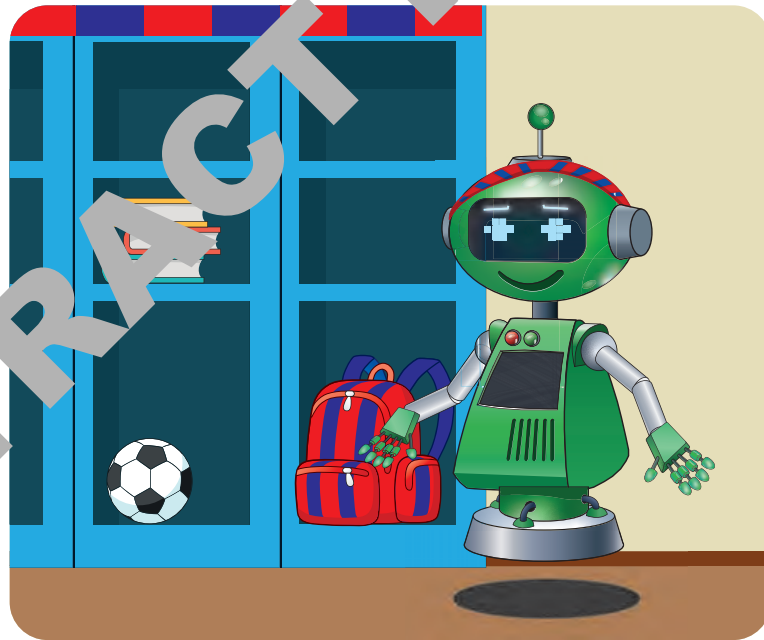
- Show your bag tag to your friend.

## Activity 2 (Continued)


1. Which colours did you choose?
2. Why did you choose those two colours?

Other objects to use:

- a. bottle tops
- b. colour paper



How do you feel about the work you did?

1 	2 	3 	4 
Trying!	Happy!	Proud!	Yay!

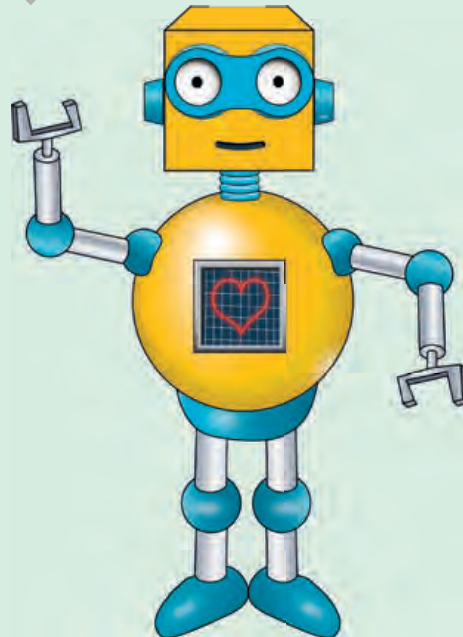
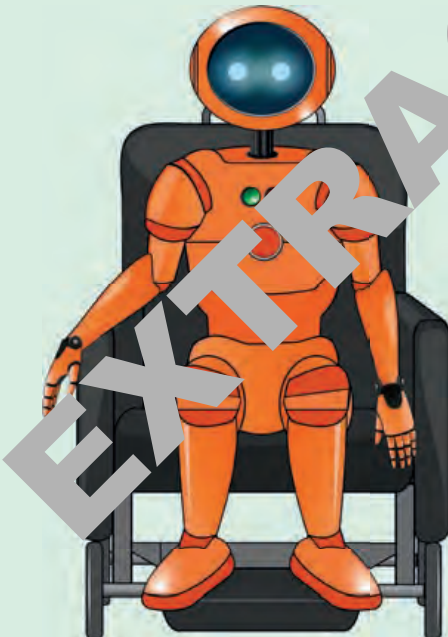


How do robots help people?

## Let us begin

What is a **robot**?

A **robot** is a **machine** that can do things on its own. Robots have different parts like:



## Activity 1



1. Look at the pictures.
2. Talk about the work each robot is doing. How are they helping people?



A person cleaning a window.



We can use a robot to clean the windows for us.



Workers packing boxes.



Robots moving boxes in a warehouse.

**robot** – a machine that can do things on its own.

**machine** – something that makes work easier.

New words

## Activity 2



There is rubbish in the road. The bags are overflowing. Design a bin that we can use to hold all the rubbish.



1. Draw your bin.
2. Draw the steps of how you are going to build your bin.



How do you feel about the work you did?

1		2		3		4	
Trying!		Happy!		Proud!		Yay!	

How should I behave when I use a **device**?



## Let us begin

1. How should you behave in class?
2. Look at each picture.
3. Would you give a  or ?





## Activity 1



Talk about the behaviour in each of the pictures.



New words

**device** – a tool that can be used to do a task, like a cellphone for making calls, playing games and taking pictures.

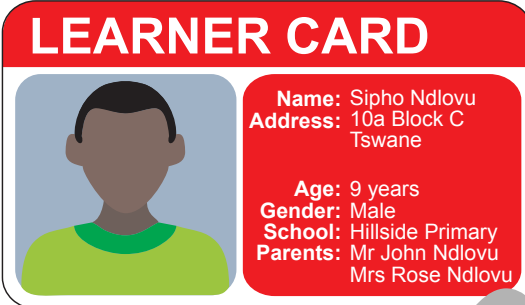
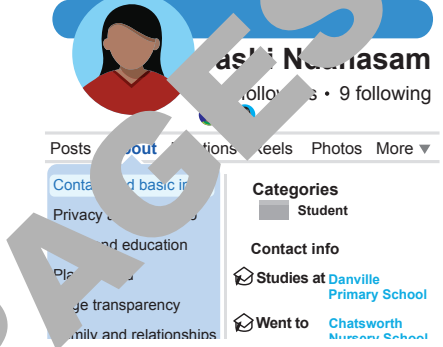


**personal information** – something about you that tells people who you are, like your name and home address.

**digital world** – an invisible world inside your cellphone or computer screen.

## Activity 2







1. Talk about the information on the cards.

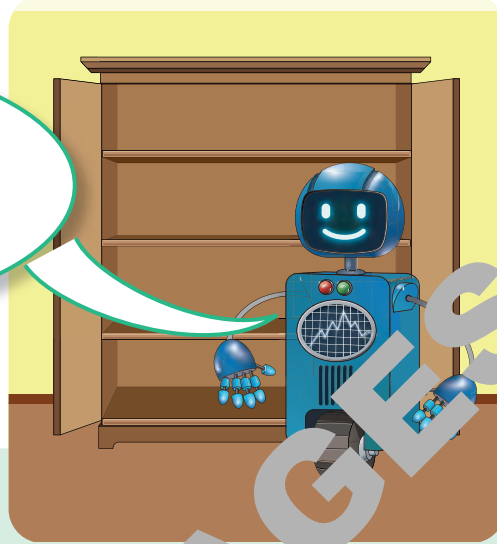
Every day	Digital world
 <p><b>LEARNER CARD</b></p> <p><b>Name:</b> Siphon Ndlovu <b>Address:</b> 10a Block C Tswane</p> <p><b>Age:</b> 9 years <b>Gender:</b> Male <b>School:</b> Hillside Primary <b>Parents:</b> Mr John Ndlovu Mrs Rose Ndlovu</p>	 <p><b>Ashi Namasam</b> Following 9 following</p> <p>Categories: Student</p> <p>Studies at: Danville Primary School</p> <p>Went to: Chatsworth Museum School</p>
<p>Would you give this behaviour a  or  ?</p>	
Telling people where you live.	Sharing your location online.
Telling a stranger where you go to school.	Posting pictures in front of your school.

2. Ask an adult at home to show you their identification (ID).

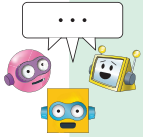
How do you feel about the card you did?

1 	2 	3 	4 
Trying!	Happy!	Proud!	Yay!

All the devices are missing. Please help me find them.



## Let us begin



1. Look at the pictures.



2. How are the **devices** being used?

3. How are devices used in your home?

## Activity 1



1. Help Binkie find the missing devices by pointing them out.



2. Why did you choose the ones you did?
3. How many devices did you find?

## Activity 2



1. Think about a device you use everyday.
2. What are the parts and buttons on the device?
3. Draw the device you use.



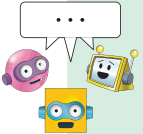
How do you feel about the work you did?

1		2		3		4	
Trying!		Happy!		Proud!		Yay!	



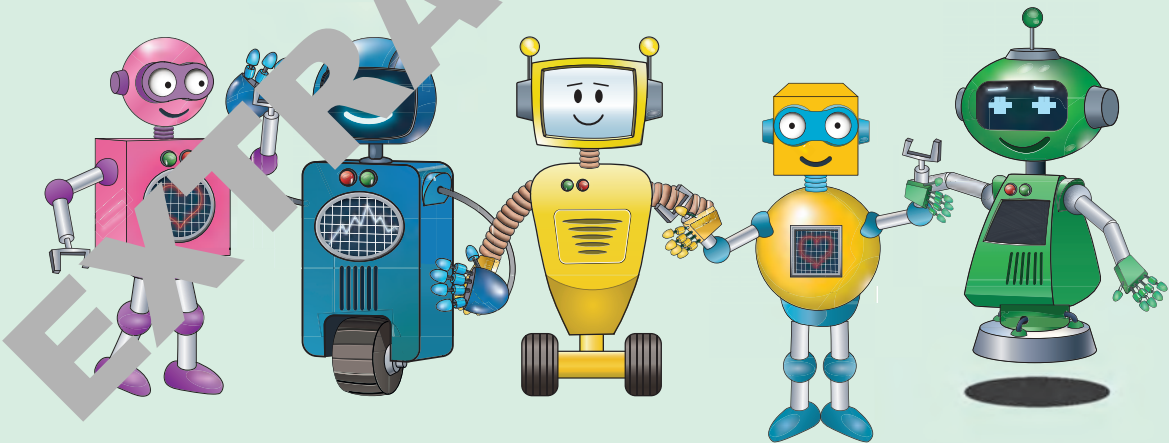
I like how we are all different.

## Let us begin



A robot is a machine that has a computer, moving parts and sensors.

We are all different with different uses.



## Activity 1

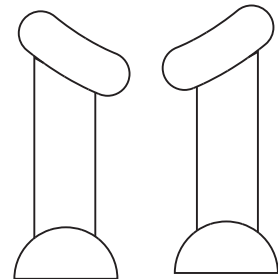
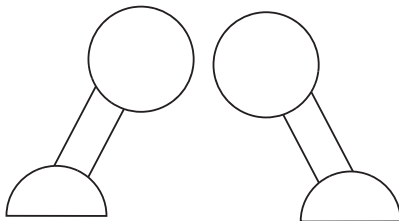
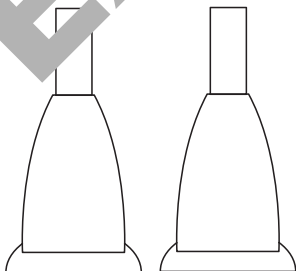
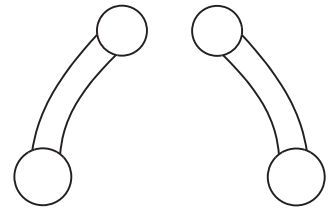
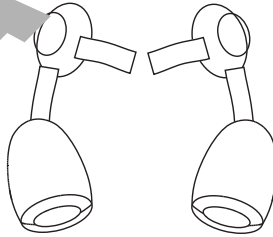
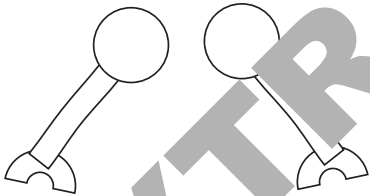
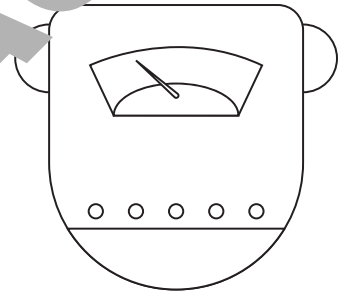
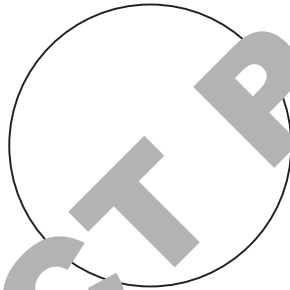
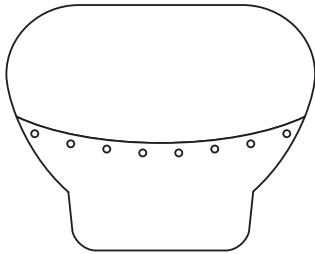
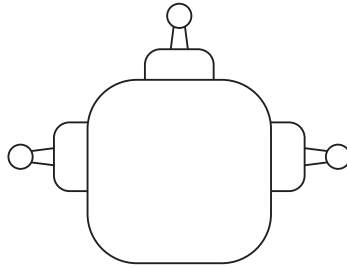
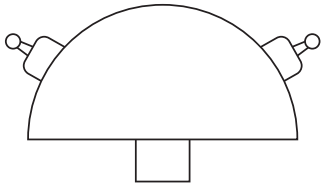


### Make your robot

1. Choose
  - A head
  - A body
  - Two arms
  - Legs
2. Trace the robot parts to make your robot on a separate page.
3. Cut out each part.
4. Paste the parts together to make your own robot.
5. Talk about your robot.
  - a. What is your robot's name?
  - b. What can it do?

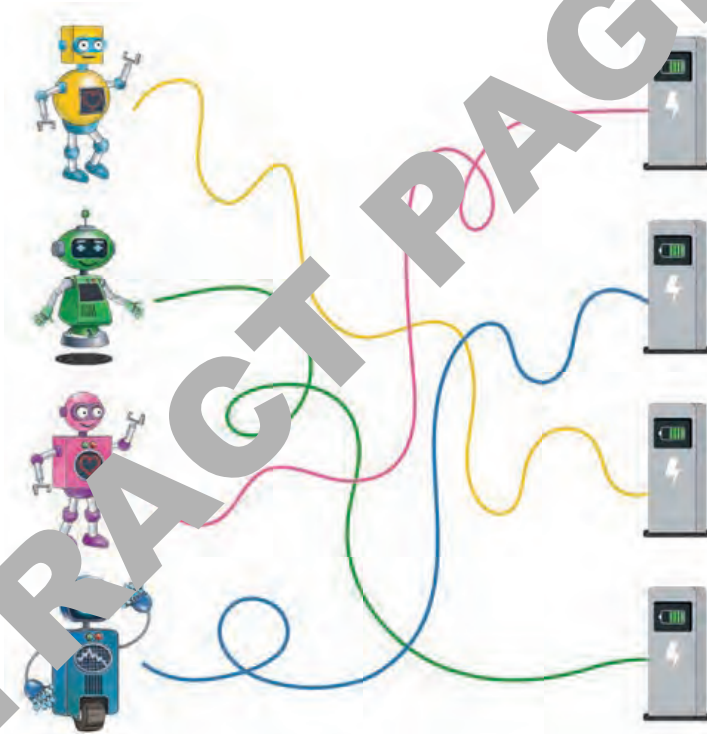


### Activity 1 (Continued)



## Activity 2



1. We eat food for energy and robots need power to work and help us. Now charge your robots. Follow the lines with your finger and find out if you are correct.

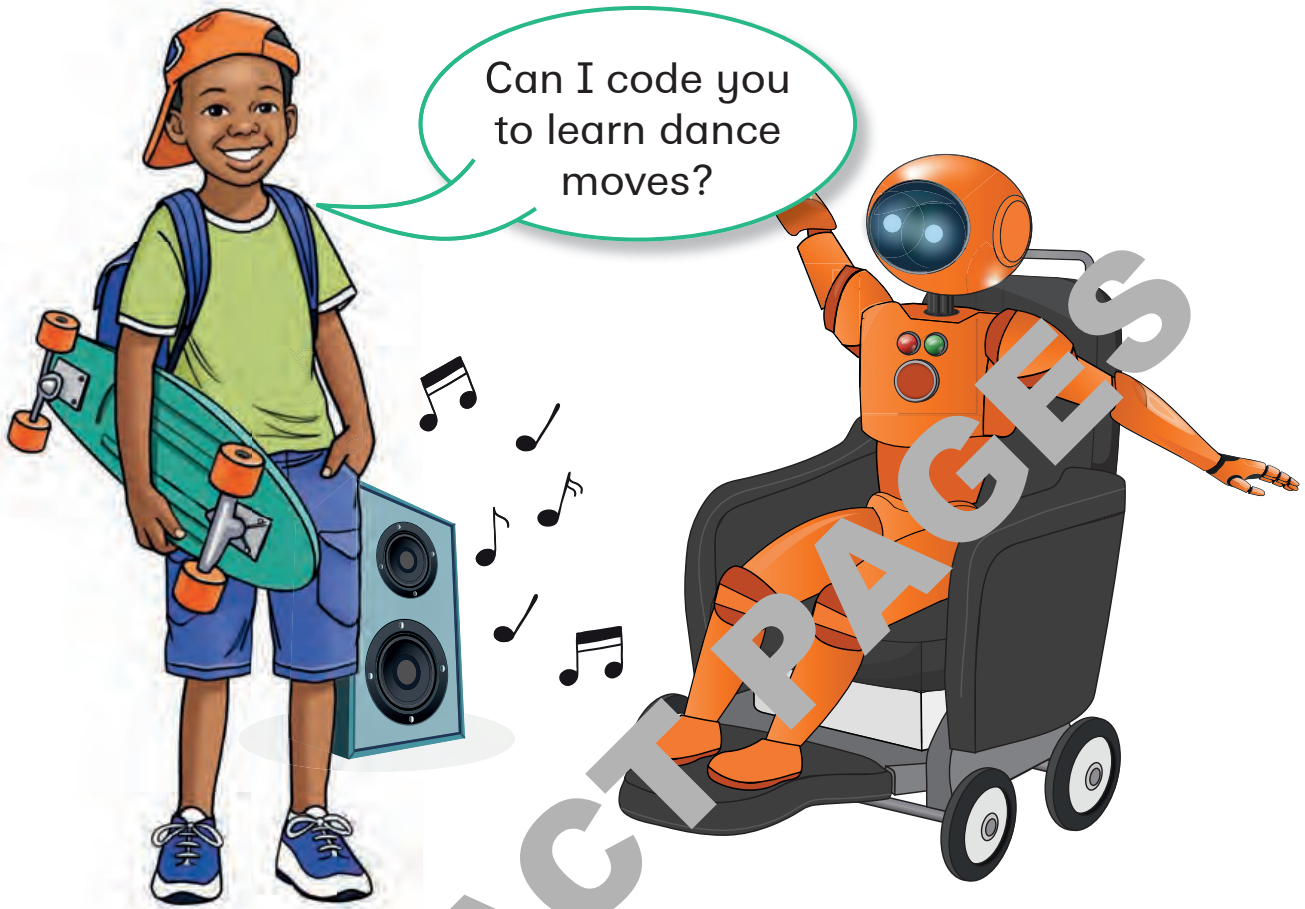


**robotics** – learning about robots.

New words

How do you feel about the work you did?

1 	2 	3 	4 
Trying!	Happy!	Proud!	Yay!



Let us begin

What is code?

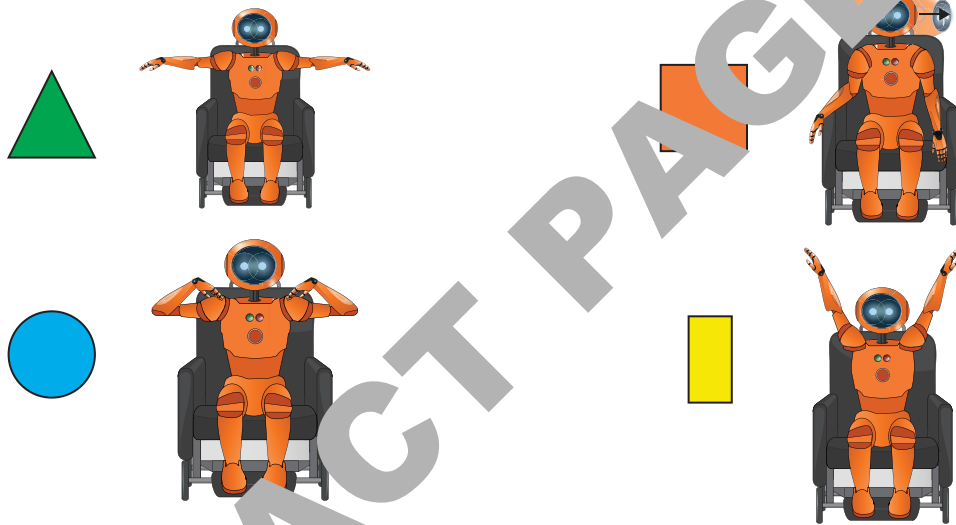
Code is instructions that tell a computer what to do.

## Activity 1



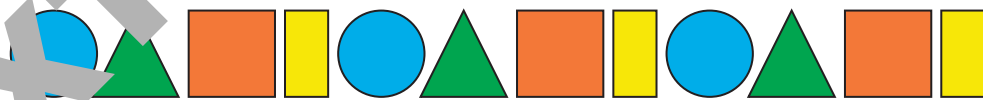
Kody loves to dance.

He picks four shapes. He gives a movement to each shape to make the code.



Follow Kody's steps.

1. Look at the pattern and repeat the actions.



EXTRACT PAGES

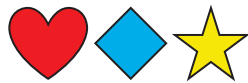


**code** – instructions that tell a computer what to do.

## Activity 2



1. Choose a movement for each of the new shapes to make your codes.



2. Draw your codes.

3. Practice the movements by looking at the codes with your friend.

4. Repeat the movements four times.


5. Look at the pattern.

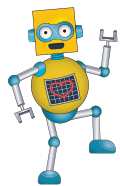
a. Do your dance.

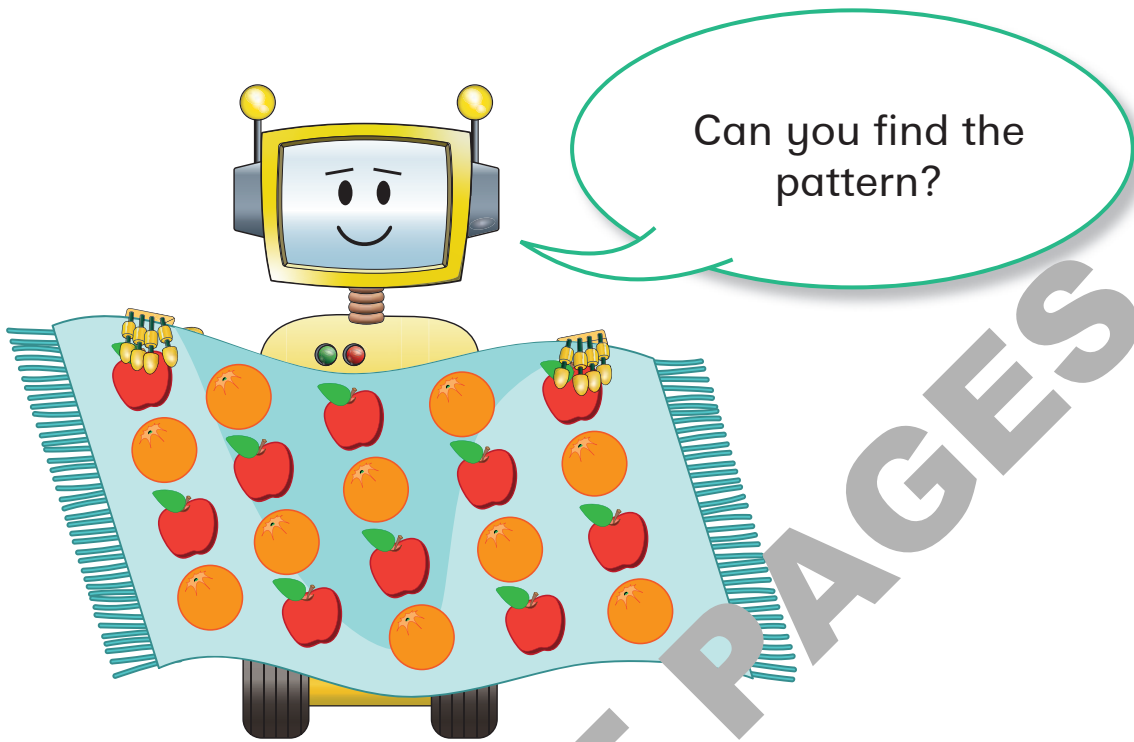
b. Repeat it four times.



How do you feel about the work you did?

1 	2 	3 	4 
Trying!	Happy!	Proud!	Yay!





## Let us begin

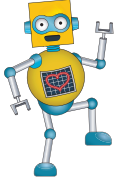
A sequence is the order in which things happen.

1. What is the sequence?
2. How many times does the sequence **repeat**?



**repeat** – to do something many times.

New words



## Activity 1



1. Each person holds a fruit. Get into this pattern.



2. Make this pattern in your group.



or



3. Let us try another pattern.

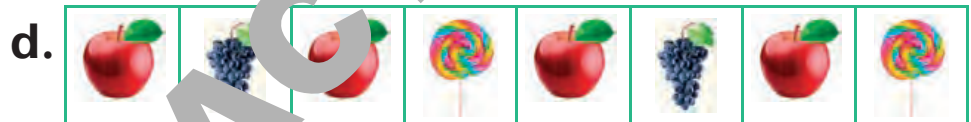




4. Here is one more.







## Activity 2

1. Is this a pattern?  or 



2. Talk about why you chose  or .

How do you feel about the work you did?

1 	2 	3 	4 
Trying!	Happy!	Proud!	Yay!

# Move until you hit the barrier

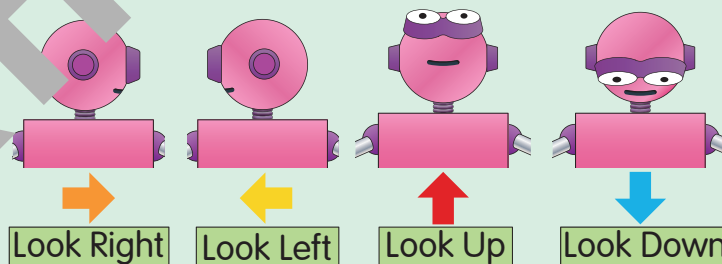
C2  
C3

Can I find the path?



## Let us begin

I. Look at the way Zaza is moving her head.



a. Move your head in the same direction as the arrow is facing.



## Activity 2

Look at the grids.

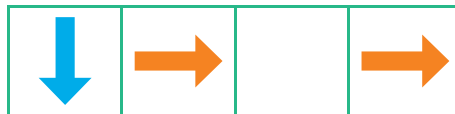
1. What arrow is missing?
2. Write the missing arrow to complete the code.



a.



b.



**path** – a way to get somewhere.

**direction** – direction tells us which way to go.

